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04 March 2024

Kevin Fredrickson
Hilcorp
382 CR 3100
Aztec, NM 87410
RE: East

Enclosed are the results of analyses for samples received by the laboratory on 02/28/24 14:40. The data to follow was performed, in whole or in part, by Green Analytical Laboratories. Any data that was performed by a subcontract laboratory is included within the GAL report, or with an additional report attached.

If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads 'Veronica J. Wells'.

Veronica Wells
Project Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water. TNI Certificate Number: TX-C24-00019

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8. TNI Certificate Number: T104704398-23-16

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Hilcorp	Project: API - Oil Field "Complete Water"	
382 CR 3100	Project Name / Number: East	Reported:
Aztec NM, 87410	Project Manager: Kevin Fredrickson	03/04/24 16:27

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Howell K 4	2402229-01	Water	02/28/24 08:00	02/28/24 14:40	

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Veronica Wells, Project Manager

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Hilcorp
382 CR 3100
Aztec NM, 87410

Project: API - Oil Field "Complete Water"
Project Name / Number: East
Project Manager: Kevin Fredrickson

Reported:
03/04/24 16:27

Howell K 4

2402229-01 (Water)

Sampled Date: 02/28/24 08:00

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Total as CaCO ₃ *	310	10.0	8.00	mg/L	5	03/04/24 10:30	2320 B		IDB
Alkalinity, Hydroxide as CaCO ₃ *	190	10.0	8.00	mg/L	5	03/04/24 10:30	2320 B		IDB
Alkalinity, Carbonate as CaCO ₃ *	120	10.0	8.00	mg/L	5	03/04/24 10:30	2320 B		IDB
Alkalinity, Bicarbonate as CaCO ₃ *	<10.0	10.0	8.00	mg/L	5	03/04/24 10:30	2320 B		IDB
Chloride*	413	100	5.55	mg/L	100	03/02/24 01:08	EPA300.0		AWG
Conductivity*	16000	1.00		umho/cm@25 C	1	03/01/24 10:20	2510 B		IDB
pH*	11.6			pH Units	1	02/28/24 15:45	EPA150.1		IDB
pH Temperature, degrees C	20.7			pH Units	1	02/28/24 15:45	EPA150.1		IDB
Resistivity	62.5			ohm/cm	1	03/04/24 08:56	2510 B		JDA
Specific Gravity	1.012	0.8000		No Unit	1	02/28/24 11:55	ASTM D1429-03		IDB
Sulfate*	8660	100	12.4	mg/L	100	03/02/24 01:08	EPA300.0		AWG
Total Dissolved Solids*	13700	20.0		mg/L	2	02/29/24 14:14	EPA160.1		IDB

Potentially Dissolved Metals by ICP

Barium*	<0.400	0.400	0.157	mg/L	20	03/04/24 13:32	EPA200.7		AES
Calcium*	354	2.00	0.360	mg/L	20	03/04/24 13:32	EPA200.7		AES
Hardness, as CaCO ₃	883	13.2	3.39	mg/L	20	03/04/24 13:32	2340 B		AES
Iron*	8.08	1.00	0.397	mg/L	20	03/04/24 13:32	EPA200.7		AES
Lead*	<2.00	2.00	0.211	mg/L	20	03/04/24 13:32	EPA200.7		AES
Magnesium*	<2.00	2.00	0.606	mg/L	20	03/04/24 13:32	EPA200.7		AES
Manganese*	<0.128	0.400	0.128	mg/L	20	03/04/24 13:32	EPA200.7		AES
Potassium*	<20.0	20.0	1.50	mg/L	20	03/04/24 13:32	EPA200.7		AES
Silica (SiO ₂)	8.91	21.4	1.99	mg/L	20	03/04/24 13:32	Calculation		AES
Silicon	<10.0	10.0	0.932	mg/L	20	03/04/24 13:32	EPA200.7		AES
Sodium*	4810	20.0	4.60	mg/L	20	03/04/24 13:32	EPA200.7		AES
Strontium*	13.3	2.00	0.230	mg/L	20	03/04/24 13:32	EPA200.7		AES
Zinc*	<2.00	2.00	0.183	mg/L	20	03/04/24 13:32	EPA200.7		AES

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Veronica J. Wells

Veronica Wells, Project Manager

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382 CR 3100
Aztec NM, 87410

Project: API - Oil Field "Complete Water"
Project Name / Number: East
Project Manager: Kevin Fredrickson

Reported:
03/04/24 16:27

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B240460 - General Prep - Wet Chem										
Reference (B240460-SRM1)				Prepared & Analyzed: 02/28/24						
pH	6.95		pH Units	7.00		99.3	98.57-101.42			
Batch B240468 - General Prep - Wet Chem										
Reference (B240468-SRM1)				Prepared & Analyzed: 03/01/24						
Conductivity	990	1.00	umho/cm@25C	1000		99.0	90-110			
Batch B240470 - General Prep - Wet Chem										
Blank (B240470-BLK1)				Prepared & Analyzed: 02/29/24						
Total Dissolved Solids	ND	10.0	mg/L							
Reference (B240470-SRM1)				Prepared & Analyzed: 02/29/24						
Total Dissolved Solids	390	10.0	mg/L	400		97.5	85-115			
Batch B240476 - IC- Ion Chromatograph										
Blank (B240476-BLK1)				Prepared & Analyzed: 03/01/24						
Chloride	ND	1.00	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B240476-BS1)				Prepared & Analyzed: 03/01/24						
Chloride	23.8	1.00	mg/L	25.0		95.3	90-110			
Sulfate	23.9	1.00	mg/L	25.0		95.7	90-110			
LCS Dup (B240476-BSD1)				Prepared & Analyzed: 03/01/24						
Chloride	24.8	1.00	mg/L	25.0		99.2	90-110	3.99	20	
Sulfate	24.8	1.00	mg/L	25.0		99.2	90-110	3.56	20	
Batch B240478 - General Prep - Wet Chem										
Blank (B240478-BLK1)				Prepared & Analyzed: 03/04/24						
Alkalinity, Bicarbonate as CaCO3	ND	10.0	mg/L							
Alkalinity, Carbonate as CaCO3	ND	10.0	mg/L							
Alkalinity, Hydroxide as CaCO3	ND	10.0	mg/L							
Alkalinity, Total as CaCO3	ND	10.0	mg/L							
LCS (B240478-BS1)				Prepared & Analyzed: 03/04/24						
Alkalinity, Total as CaCO3	98.0	10.0	mg/L	100		98.0	85-115			

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Aztec NM, 87410

Project: API - Oil Field "Complete Water"
Project Name / Number: East
Project Manager: Kevin Fredrickson

Reported:
03/04/24 16:27

General Chemistry - Quality Control (Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B240478 - General Prep - Wet Chem (Continued)

LCS Dup (B240478-BSD1)

Prepared & Analyzed: 03/04/24

Alkalinity, Total as CaCO ₃	100	10.0	mg/L	100	100	85-115	2.02	20
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Reference (B240478-SRM1)

Prepared & Analyzed: 03/04/24

Alkalinity, Total as CaCO ₃	74.0	10.0	mg/L	72.7	102	85-115
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Project: API - Oil Field "Complete Water"
Project Name / Number: East
Project Manager: Kevin Fredrickson

Reported:
03/04/24 16:27

Potentially Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B240475 - Potentially Dissolved ICP

Blank (B240475-BLK1)

Prepared: 03/01/24 Analyzed: 03/04/24

Barium	ND	0.020	mg/L
Calcium	ND	0.100	mg/L
Iron	ND	0.050	mg/L
Lead	ND	0.100	mg/L
Magnesium	ND	0.100	mg/L
Manganese	ND	0.020	mg/L
Potassium	ND	1.00	mg/L
Silicon	ND	0.500	mg/L
Sodium	ND	1.00	mg/L
Strontium	ND	0.100	mg/L
Zinc	ND	0.100	mg/L

LCS (B240475-BS1)

Prepared: 03/01/24 Analyzed: 03/04/24

Barium	1.98	0.020	mg/L	2.00	99.2	85-115
Calcium	3.94	0.100	mg/L	4.00	98.5	85-115
Iron	4.03	0.050	mg/L	4.00	101	85-115
Lead	1.93	0.100	mg/L	2.00	96.3	85-115
Magnesium	20.3	0.100	mg/L	20.0	101	85-115
Manganese	2.03	0.020	mg/L	2.00	102	85-115
Potassium	8.23	1.00	mg/L	8.00	103	85-115
Silicon	3.96	0.500	mg/L	4.00	99.1	85-115
Sodium	3.29	1.00	mg/L	3.24	101	85-115
Strontium	3.95	0.100	mg/L	4.00	98.7	85-115
Zinc	1.92	0.100	mg/L	2.00	95.9	85-115

LCS Dup (B240475-BSD1)

Prepared: 03/01/24 Analyzed: 03/04/24

Barium	1.96	0.020	mg/L	2.00	97.8	85-115	1.42	20
Calcium	3.86	0.100	mg/L	4.00	96.5	85-115	2.09	20
Iron	3.94	0.050	mg/L	4.00	98.4	85-115	2.41	20
Lead	1.92	0.100	mg/L	2.00	95.9	85-115	0.370	20
Magnesium	20.0	0.100	mg/L	20.0	99.8	85-115	1.47	20
Manganese	2.00	0.020	mg/L	2.00	100	85-115	1.43	20
Potassium	8.16	1.00	mg/L	8.00	102	85-115	0.900	20
Silicon	3.89	0.500	mg/L	4.00	97.3	85-115	1.79	20
Sodium	3.24	1.00	mg/L	3.24	99.9	85-115	1.46	20
Strontium	3.90	0.100	mg/L	4.00	97.5	85-115	1.19	20
Zinc	1.91	0.100	mg/L	2.00	95.7	85-115	0.193	20

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Hilcorp	Project: API - Oil Field "Complete Water"	
382 CR 3100	Project Name / Number: East	Reported:
Aztec NM, 87410	Project Manager: Kevin Fredrickson	03/04/24 16:27

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

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100% 100%

Client: Hilcorp	Asset: EAST	Phone# 505-634-6059	Contact Kevin Fredrickson
Address: 382 Road 3100, Aztec, NM. 87410		E-Mail Address kfredrickson@hilcorp.com	



75 Suttle Street
Durango, CO 81303
Phone: 970-247-4220
FAX: 970-247-4227

CHAIN OF CUSTODY RECORD

GAL Work Order # 2402-229

PO#


Project Name:

(1)BumperSpring, (2)CompressorDischarge, (3)Flowline, (4)Meter, (5)Oil Tank
(6)PigLauncher, (7)PigReceiver, (8)Pipeline, (9)Pit Tank, (10)PostFilter, (11)PreFilter
(12)SeparatorInlet, (13)SeparatorOutlet, (14)SeparatorDump, (15)SWDInlet
(16)SWDOutlet, (17)TransferPump, (18)ValveCan, (19)WaterTank, (20)Wellhead
(21)Other

(1)Casing, (2)CO₂GasTube, (3)Coupon, (4)Water, (5)H₂SGasTube, (6)Metals
(7)O₂GasTube, (8)PipeSection, (9)Residual, (10)Sludge, (11)Solid, (12)Tubing, (13)Other

15.8°C
Laser #2
noise

[illegible]

Relinquished by:	Date:	Time: 2:30	Received By: Nigmo	Date: 2/28/24	Time: 1440
	2-28-24				

Project Information

Hilcorp

382 CR 3100

Aztec, NM 87410

Laboratory PM: Veronica Wells

Phone:(505) 599-4005

Fax:(505) 599-4005

Hilcorp

2/28/2024

Project Name: API - Oil Field "Complete Water"

Project Number: [none]

Client PM: Bill Eaves

Comments:

AnalysisComment

Alkalinity, Total

Barium Potentially Dissolved by ICP

Chloride [IC]

Conductivity

Hardness, [POTENTIALLY DISSOLVED]

Iron Potentially Dissolved by ICP

Lead Potentially Dissolved by ICP

Manganese Potentially Dissolved by ICP

pH

Potassium Potentially Dissolved by ICP

Resistivity

Silica Potentially Dissolved by ICP

Silicon Potentially Dissolved by ICP

Sodium Potentially Dissolved by ICP

Specific Gravity

Strontium Potentially Dissolved by ICP

Sulfate [IC]

Total Dissolved Solids [TDS]

Zinc Potentially Dissolved by ICP

Hardness, [POTENTIALLY DISSOLVED] subanalyses:

Calcium Potentially Dissolved by ICP

Magnesium Potentially Dissolved by ICP



SAMPLE CONDITION RECEIPT FORM

Client Name: HilcorpWork Order # 2402-229Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client ☐ Kangaroo ☐ Third Party ☐ OtherCustody Seals on Box/Cooler Present: ☐ Yes ☒ NoSeals Intact: ☐ Yes ☐ No

No

Thermometer Used: 2 Samples on ice, cooling process has begun: ☐ Yes ☒ NoType of Ice: ☐ Wet ☐ Blue ☒ NoneCooler Temp: Observed Temp: 15.8 °C Correction Factor: 0 °C Final Temp: 15.8 °C

*Temp should be above freezing to 6°C

Date/Initials of person examining contents: VJW 2-28-24Labeled by initials: _____
(if different than above)

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3.
Sampler Name and Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.
Samples arrived within hold time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. <u>pH</u>
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. <u>3 day</u>
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. <u>poured off for metals & nutrients</u>
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Dissolved Testing Needed:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. <u>PO</u>
Field Filtered: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Sample Labels match COC: -Includes Date/Time/ID	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12.
Matrix:	<u>WT</u> <input type="checkbox"/> SL <input type="checkbox"/> OT	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

Client Notification/Resolution:

Person Contacted: _____

Date/Time: _____

Comments/Resolution: _____

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 434031

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 434031
	Action Type: [UF-GA] Gas Analysis (GAS ANALYSIS)

CONDITIONS

Created By	Condition	Condition Date
mkuehling	report from 3/4/24 - tds 13700	5/1/2025